Applicant: Swan, et al Serial No.: 10/723,505

Filed: November 26, 2003 \* Title: BIOCOMPATIBLE POLYMERIZATION ACCELERATORS

Examiner: Naff, David M.
Group Art Unit: 1657
Docket No.: SRM0006/US

## **Listing of Claims**

As shown below,

- Please cancel claim 13; and
- please amend claims 1 and 21
- please add new claim 33.
- 1. (currently amended) A composition comprising:
- (a) a polymerization accelerator comprising a biocompatible functional group, a carbonyl group, and an N-vinyl group; and
- (b) a polymerizable material, wherein the polymerization accelerator increases the rate that the polymerizable material becomes incorporated into a polymerized product in a polymerization reaction.
- 2. (original) The composition of claim 1 further comprising a polymerization initiator.
- 3. (original) The composition of claim 2 wherein the polymerization initiator comprises a photoinitiator group.
- 4. (original) The composition of claim 3 wherein the photoinitiator group is a long-wave ultra violet- or visible light-activatable molecule.
- 5. (original) The composition of claim 1 wherein the polymerizable material comprises a macromer.
- 6. (original) The composition of claim 5 wherein the macromer is selected from the group consisting of water-soluble macromers.
- 7. (original) The composition of claim 5 wherein the macromer is present at a concentration in the range of 0.5 50 wt%.

Applicant: Swan, et al Serial No.: 10/723.505

**Serial No.:** 10/723,505 **Filed:** November 26, 2003

Title: BIOCOMPATIBLE POLYMERIZATION ACCELERATORS

Examiner: Naff, David M.
Group Art Unit: 1657

Docket No.: SRM0006/US

8. (original) The composition of claim 7 wherein the macromer is present at a

concentration in the range of 1 - 30 wt%.

9. (currently amended) The composition of claim 1 further comprising an acceptor or

reductant that forms a free radical and causes free radical polymerization of the

polymerizable material in the polymerization reaction.

10. (original) The composition of claim 1 wherein the biocompatible functional group is

selected from phosphonate (PO<sub>3</sub><sup>-</sup>), sulfonate (SO<sub>3</sub><sup>-</sup>), carboxylate (COO<sup>-</sup>), hydroxyl (OH),

albumin binding moieties, and phospholipid moieties.

11. (original) The composition of claim 1 wherein the biocompatible functional group

comprises a sulfonate group.

12. (cancelled)

13. (cancelled)

14. (original) The composition of claim 13 wherein the polymerization accelerator

comprises an N-vinyl amide group.

15. (previously presented) The composition of claim 1 wherein the N-vinyl nitrogen is an

atom in a heterocyclic ring.

16. (previously presented) The composition of claim 1 wherein the polymerization

accelerator is able to react with the polymerizable material to form the polymerized

product having biocompatible properties.

3

Applicant: Swan, et al

Serial No.: 10/723,505 Filed: November 26, 2003

Title: BIOCOMPATIBLE POLYMERIZATION ACCELERATORS

Examiner: Naff, David M. Group Art Unit: 1657

Docket No.: SRM0006/US

17. (previously presented) The composition of claim 1 wherein the polymerization

accelerator is present in an amount sufficient to improve the biocompatibility properties

of the polymerized product.

18. (previously presented) The composition of claim 1 wherein the polymerization

accelerator is present in an amount sufficient to promote formation of the polymerized

product.

19. (original) The composition of claim 18 wherein the polymerization accelerator is

present at a concentration of 0.05 wt% or greater.

20. (original) The composition of claim 19 wherein the polymerization accelerator is

present at a concentration in the range of 0.05 - 1.0 wt%.

21. (currently amended) A composition comprising:

(a) a polymerization accelerator comprising:

i) a biocompatible functional group and ii) an N-vinyl group, and

iii) a carbonyl group; and

(b) a macromer,

wherein the polymerization accelerator is able to be reacted with the macromer to

form a biocompatible matrix and the polymerization accelerator increases the rate that the

macromer becomes incorporated into the biocompatible matrix.

22 –27. (canceled).

28. (previously presented) The composition of claim 5 wherein the macromer comprises

a protein or polyamino acid.

4

Applicant: Swan, et al Serial No.: 10/723,505 Filed: November 26, 2003

Title: BIOCOMPATIBLE POLYMERIZATION ACCELERATORS

Examiner: Naff, David M.
Group Art Unit: 1657
Docket No.: SRM0006/US

29. (previously presented) The composition of claim 28 wherein the macromer is selected from the group consisting of gelatin, collagen, fibronectin, laminin, albumin, and active peptides thereof.

- 30. (previously presented) The composition of claim 5 wherein the macromer comprises a polysaccharide.
- 31. (previously presented) The composition of claim 30 wherein the macromer is selected from the group consisting of hyaluronic acid (HA), starch, dextran, heparin, and chitosan.
- 32. (previously presented) A composition comprising:
- (a) a polymerization accelerator comprising a biocompatible functional group, wherein the biocompatible functional group comprises a sulfonate group; and
- (b) a polymerizable material, wherein the polymerization accelerator is able to be reacted with the polymerizable material to form a biocompatible matrix and the polymerization accelerator increases the rate that the polymerizable material becomes incorporated into the biocompatible matrix.

## 33. (new) A composition comprising:

(a) a polymerization accelerator of the formula:

$$Z$$
 $R_3$ 
 $R_2$ 
 $R_1$ 

wherein  $R_1$  is  $CH_2$ ;  $R_2$  is a covalent bond, 1-4 carbon, oxygen, nitrogen, or sulphur, or combinations thereof;  $R_3$  is a covalent bond, 1-4 carbon, nitrogen, or combinations thereof, with the provision that  $R_2$  and  $R_3$  are not both covalent bonds; Z is

Applicant: Swan, et al Serial No.: 10/723,505

Filed: November 26, 2003

Title: BIOCOMPATIBLE POLYMERIZATION ACCELERATORS

Examiner: Naff, David M. Group Art Unit: 1657

Docket No.: SRM0006/US

a biocompatible functional group selected from the group consisting of PO<sub>3</sub>, SO<sub>3</sub>, COO, OH, albumin binding moieties, and phospholipid moieties; Y is a covalent bond  $(Y_0)$  or a spacer (Y<sub>1</sub>) between the ring structure and group Z, wherein Y<sub>1</sub> is 1-4 carbon alkyl, 1-4 carbon alkoxy, oxygen, nitrogen, or combinations thereof; and

## (b) a macromer,

wherein the polymerization accelerator is able to be reacted with the macromer to form a biocompatible matrix and the polymerization accelerator increases the rate that the macromer becomes incorporated into the biocompatible matrix.